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	APPL NOs.	422026, 423281, 456659, and 456660
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	PROCESSED BY JPV	CHECKED BY SMKE

APPLICANT'S NAME: M. C. GILL CORPORATION

MAILING ADDRESS: 4076 EASY STREET
EL MONTE, CA 91731

EQUIPMENT LOCATION: SAME AS ABOVE

EQUIPMENT DESCRIPTION:

**APPLICATION NO. 422026 [Replacement of previous A/B (C15) under
P/O F61780, A/N 365224]-P/O no P/C**

REGENERATIVE THERMAL OXIDIZER #7, ADWEST, MODEL NO. RETOX 6.0 RTO 95,
11'-8" W. X 19'-2" L. X 8'-11" H., 7,000 SCFM CAPACITY, WITH A 2.5 X 10⁶ BTU PER
HOUR NATURAL GAS FIRED BURNER, TWO CERAMIC BEDS, ONE 3 H.P. COMBUSTION
AIR BLOWER, AND NATURAL GAS INJECTION (C48), WITH 40-HP. BLOWER VENTING
HONEYCOMB (NOMEX) BAKE OVEN #1 (D14), AND A PERMANENT TOTAL
ENCLOSURE WITH PREPREGGER #1 (D11, D13), AND DIP ROOM #1 (D8).

APPLICATION NO. 423281

TITLE V PERMIT REVISION, DE MINIMIS SIGNIFICANT.

APPLICATION NO. 456659, (P/O, SPLIT OF PREVIOUS PO #F61780, A/N 365224):

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
Process 2: DIP TANK IMPREGNATING OPERATION					
System 2: DIP ROOM #1, PREPREGGER #1, NOMEX OVEN					
PROCESS TANK, UNHEATED, WIDTH: 9 IN; HEIGHT: 5 IN; LENGTH: 6 FT 2 IN A/N 456659	D11			VOC: (9) [RULE 1128, 3- 8-1996; RULE 1171,11-7- 2003;RULE 1171,5-1-2009]	A63.8, B59.6, H23.3, K67.9
OVEN, PROCESS HEAT IS FROM THE AFTERBURNER C48, INDUSTRIAL OVEN AND EQUIPMENT WITH TWO 3 H.P. CIRCULATING BLOWERS A/N 456659	D13				A63.8, B59.6, K67.9

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APPLICATION NO. 456660, (P/O, SPLIT OF PREVIOUS PO #F61780, A/N 365224):

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
Process 2: DIP TANK IMPREGNATING OPERATION					
System 2: DIP ROOM #1, PREPREGGER #1, NOMEX OVEN					
OVEN, NO. 1, PROCESS HEAT FROM THE AFTERBURNER C48, HONEYCOMB (NOMEX) BAKE WITH ONE 25 H.P. CIRCULATING BLOWER A/N 456660	D14				A63.8, B59.6, K67.9

BACKGROUND:

M.C. Gill Corporation submitted application no. 422026 for a new regenerative thermal oxidizer #7 (RTO #7, device C48) to replace an existing afterburner (A/B #1, C15), which is operating under A/N 365224 (P/O #F61780). This afterburner controls VOC emissions from Pre-pregger #1 (D11, D12 and D13), Honeycomb (Nomex) bake oven #1 (D14) and Dip Room #1 (D8). The previous afterburner provided more than 25% of the heat to Pre-pregger #1 and the Nomex bake oven #1. Therefore, all three systems were under one permit unit. The new RTO #7 (C48) will also provide more than 25% of the heat to Pre-pregger #1 and to the Nomex bake oven #1 (D14).

M.C. Gill submitted application no. 456659 for the administrative change of A/N 365224 to separate pre-pregger #1 (device nos. D11, D12 and D13) from the permit unit comprised of the A/B #1 (C15) venting the pre-pregger #1 (D11-D13), Nomex bake oven #1 (D14), and the dip room #1 (D8); and to remove process tank (D12) from pre-pregger #1. See memo-to-file, dated 4/12/06. M.C. Gill also submitted A/N 456660 for the administrative change of A/N 365224 to remove the Nomex bake oven (D14) from the same permit unit so that the Nomex bake oven would be under its own permit. This was requested to avoid confusion with process and system categories as they appear on the Title V permit. However, it was later thought that the process of splitting the permit unit was requested may not be possible with the applications filed. As a result, M.C. Gill retracted both requests. See e-mail from Mr. Greg Zeronian, dated 11/5/09, in the files for A/Ns 456659 and 456660. However, it was later determined that the permit unit split could be done as originally proposed. Therefore, the application for the new control equipment (A/N 422026) will cover the new RTO #7 (C48) to replace A/B #1 (C15). A/N 456659 will cover devices D11 and D13. A/N 456660 will cover the Honeycomb (Nomex) bake oven #1 (D14). Dip room #1 (D8) already has a separate permit under PO #D90614 (A/N 302959)

The new RTO #7 has been installed and is in operation, and the old afterburner has been removed. The new RTO start-up burner is 2.5 million Btu/hr and is used to reach an initial operating temperature of 1550°F. Once at the operating temperature, the combustion temperature is maintained by the BTU value of the VOC in the process exhaust and the injection of natural gas. The old afterburner #1 (C15) was natural gas, direct-fired, with a 7.0 million Btu/hr burner. This

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replacement RTO #7 will result in a net emission decrease of combustion contaminants due to the lower burner rating, and lower gas usage since it is a regenerative-type oxidizer.

This company is a Title V facility. The Title V renewal permit was issued on 5/9/2005. The above applications are part of the 1st revision since the renewal. A/N 423281 was submitted for a de minimis significant permit revision. This revision also includes the administrative change to relocated RTE #6 and to vent D16-D17 and D20-D22 (A/N 456662); the administrative change to remove D19 and to vent D20-D22 to RTO #6 (C47) instead of C23 (A/N 456663); administrative change to vent D16-D17 to C47 instead of C18 (A/N 456664); the installation of a new afterburner (C49) under A/N 456665; and operation of a new 20.85 mm BTU/hr low-NO_x boiler (A/N 481672) (evaluations done separately). These changes will also include a change to permit condition A63.8 to convert the group VOC cap of 169 lb/day to all equipment vented to the three RTOs, to a calendar monthly VOC group cap of $169 \times 30 = 5070$ lb/calendar month. Lastly, this revision will also include the change of conditions to the two spray booths under A/Ns 446595 (D39) and 454623 (D1) (evaluation done separately).

Also, A/Ns 431630 and 447659 were submitted for de minimis significant permit revision but will be canceled. The above described permit revisions will all be included in one permit revision under the Title V revision A/N 423281.

According to the compliance data base, this company was issued one notice to comply (NC #D16505) on June 25, 2008 for the company to submit a copy of a plume modeling study to the District. According to the responsible District Inspector, the facility was found to be in compliance. Five complaints were filed against the facility in the past two years for various odors. However, none resulted in a finding of non-compliance.

PROCESS DESCRIPTION:

M.C. Gill manufactures laminated honeycomb panels and blocks. These panels and blocks are used in airplanes for commercial and military use. The new RTO #7 controls the VOC emissions from the same basic equipment as was previously vented to A/B #1 (C15); dip room #1 (D8), and pre-pregger #1 (D11 and D13) in a PTE, and the Nomex oven (D14). In the pre-pregger #1, the cloth is dip coated in a resin/solvent mixture. The cloth is passed through a vertical oven (D13) then rewound for future use or sheeted for immediate use. The VOC emissions of the return air from the Nomex bake oven (D14) are also controlled. Dip Room #1 and pre-pregger #1 are in one PTE. Two source tests were conducted on 7-12-2004 and 4/15/05 on RTO #7 to determine the overall control efficiency for the VOC emissions from Pre-pregger #1, and Dip Room #1. The 2nd source test result indicates a destruction efficiency of 99.2% and the dip room and pre-pregger #1 enclosure meets the PTE requirements under EPA Method 204 for 100% capture efficiency. The company requested a permit condition of 98% overall efficiency for RTO #7.

The old afterburner (C15) had a permit condition of 93% overall control efficiency for VOC. A source test was conducted on 7-12-04 to determine overall VOC control efficiency for the new RTO #7 (C48). The first test was conducted at a high temperature (1738-1777°F) and the results showed a destruction efficiency of 99%. The applicant had requested an operating temperature condition of 1475°F, which is the same limit as their other afterburners, and a control efficiency

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higher than 95%. Since the test was conducted at a significantly higher temperature than the requested permit condition, the District requested the applicant to conduct the source test again at a temperature closer to the requested permit limit. A second source test was conducted on 4-14-05 at a temperature of 1580-1583°F. The applicant scheduled their operations on the source test day to minimize VOC emissions to the RTO to try to reduce the operating temperature. In addition, there was no gas injection during the test. The destruction efficiency was 99.2% in the second test.

The new RTO #7 (C48) has a 2.5 million Btu/hr burner for start-up to bring it up to operating temperature (their set point is 1500°F). The RTO then switches to a gas injection mode where natural gas is injected directly into the combustion chamber as needed to keep the minimum operating temperature.

The maximum operating schedule of the facility will be 24 hr/day, 7 day/wk, and 52 wk/yr and the average operating time is 16 hr/day, 6 day/week, 52 week/year.

EMISSION CALCULATIONS:

A/B Combustion Emissions

1. DATA (A/N 422026)

Fuel = Natural Gas

Average Operating Schedule = 16 hrs/day, 6 days/wk, 52 wks/yr

Maximum Operating Schedule = 24 hrs/day, 7 days/wk, 52 wks/yr

Refer to Attachment 1 for detailed combustion emissions for the RTO #7 (C48). Attachment 2 shows the combustion emissions for the previous A/B #1 (C15). The table on the following page shows the emissions of NO_x, CO, PM₁₀ for both control equipment. There is a net emission decrease from the replacement of A/B #1 (C15).

Air Contaminants	Old A/B Device #C15	New RTO Device #C48	Δ, lb/day
NO _x	0.87 lb/hr	0.31 lb/hr	-0.56 lb/hr
	21.0 lb/day	7.43 lb/day	-13.6 lb/day
CO	0.23 lb/hr	0.08 lb/hr	-0.15 lb/hr
	5.6 lb/day	2.0 lb/day	-3.6 lb/day
PM ₁₀	0.05 lb/hr	0.018 lb/hr	-0.032 lb/hr
	1.2 lb/day	0.43 lb/day	-0.77 lb/day

RTO Design

Total maximum contaminated process flow rate	5,000 scfm
Design capacity of the control equipment	6,000 scfm
Inlet operating temp	70° F

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Outlet operating temp from combustion chamber	1475° F
Heat recovery efficiency	95%
Heat input rating of the start-up burner	2.5 mmBtu/hr
Volume of the combustion zone	250 Ft ³

Worst Case - Heat required to heat air from 70° F to 1475° F

$$M = 5,000 \text{ scfm} \times 0.075 \text{ lb/scf} \times 60 \text{ min/hr} = 27,000 \text{ lb/hr}$$

$$Cp_{70} = 0.240 \text{ Btu/lb}^\circ \text{F}$$

$$Cp_{1475} = 0.272 \text{ Btu/lb}^\circ \text{F}$$

$$Cp_{avg} = 0.256 \text{ Btu/lb}^\circ \text{F}$$

$$\begin{aligned}
 Q &= MCp \Delta T \\
 &= 27,000 \times 0.256 \times (1475-70) \\
 &= 9.71 \text{ MMBtu/hr}
 \end{aligned}$$

After 95% heat recovery

$$Q = 9.71 \times 0.05 = 0.486 \text{ Btu/hr}$$

$$\begin{aligned}
 \text{Heat input needed} &= 0.486 \times 1050/632 \text{ (AP 40, page 948, Table D7)} \\
 &= 0.807 \text{ mmBtu/hr}
 \end{aligned}$$

Contaminated airflow is sufficient to provide the necessary air. The oxidizer will have a burner rated at 2.5 mmBtu/hr which is sufficient to heat the bed and maintain the oxidizer temperature.

Residence time calculation

$$\text{Total flow rate} = 6,000 \text{ cfm}$$

$$\begin{aligned}
 Q \text{ (Flow rate per second)} &= 6,000 \text{ cfm} \times [(1475 + 460) / (70 + 460)] \times (15.1/14.7) \text{ psia} = \\
 &= 22,502 \text{ cfm}/60 \text{ sec/min} = 375 \text{ cu. ft.}
 \end{aligned}$$

$$\begin{aligned}
 \text{Residence Time} &= V/Q = \text{Combustion Chamber Vol.}/\text{Flow rate} = 250/375 = 0.66 \text{ sec} \\
 &\text{(OK- greater than 0.3 sec recommended)}
 \end{aligned}$$

RULES AND REGULATIONS

RULE 212: SIGNIFICANT PROJECT PUBLIC NOTIFICATION

A public notice is not required pursuant to subdivision (g) because the maximum potential VOC and PM₁₀ emissions from this equipment is not more than the daily maximum emissions of 30 lb/day. There is no school within 1000 feet of the company. The emissions of NO_x, CO, PM₁₀ and ROG resulting from natural gas combustion are reduced due to the lower new burner rating of 2.5 mmBtu/hr compared to the previous burner rating of 7.0 mmBtu/hr.

Natural gas combustion results in toxic air contaminants (TAC), but there is a net decrease in the MICR. Therefore, no public notice is required.

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RULE 401: VISIBLE EMISSIONS

Visible emissions from the operation of this equipment are not expected. No complaints resulting from visible emissions have been filed against this company. No N/C or NOV issued for visible emissions.

RULE 402: NUISANCE

The operation of this equipment is expected to comply with this rule. Several complaints resulting from odors have been filed against this company. However, no N/C or NOV issued for nuisance.

RULE 1128: PAPER, FABRIC, AND FILM COATING OPERATIONS

This process is in compliance with this rule. Coating is applied by dip coating which complies with the application method. The dip room #1 (D8), pre-pregger #1 (D11 and D13), and Nomex bake oven (D14) are all in a permanent total enclosure which will have 100% capture efficiency. The RTO #7 (C48) was source tested on 4-14-2005. The destruction efficiency in the source test was determined to be 99.2%, but the RTO #7 (C48) is conditioned to achieve a minimum 98% destruction efficiency.

RULE 1171: SOLVENT CLEANING OPERATIONS

Acetone is used as a cleanup solvent for all the basic equipment venting to this RTO. Acetone is an exempt solvent. Therefore, this process complies.

REGULATION XIII:

There are no changes in the operation of the basic equipment. BACT is not triggered for the dip room #1 (D8), pre-pregger #1 (D11 and D13) or Nomex bake oven (D14). The new RTO #7 was source tested and was demonstrated to achieve a minimum 98% overall efficiency. Dip room #1, pre-pregger #1 and Nomex oven are considered PTE with 100% collection efficiency. The new RTO #7 (C48) was source tested to verify performance and showed 99.2% destruction efficiency.

Offsets: Offsets are not required since there is no emission increase from the facility due to this replacement. This project is exempt from emission offset requirements by Rule 1304(a)(1), Replacements.

Modeling: Modeling is not required for VOC. The NO_x, CO, and PM₁₀ emissions from the RTO will be less than the Table A-1 amounts for 2-5 mmBtu/hr equipment. Also, this project is exempt from modeling requirements by Rule 1304(a)(1), Replacements. Therefore, modeling is not required.

RULE 1401: MAXIMUM INDIVIDUAL CANCER RISK ASSESSMENT

There is no increase in toxic emissions due to the replacement of the afterburner, because the new RTO burner is rated at a lower Btu/hr than the previous one. Therefore, there is a reduction of toxic emissions and MICR is below one-in-a-million. The hazard and chronic indices (HIA & HIC) do not exceed 1 (Attachment 3). Therefore, this equipment is in compliance with this rule.

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REG XXX

This facility is not in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” to the Title V permit for this facility.

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NO _x	40
PM ₁₀	30
SO _x	60
CO	220

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is part of the 1st permit revision to the Title V renewal permit issued to this facility on May 9, 2005. This revision also includes several other changes, as summarized in the following table (evaluations were done separately). The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

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Title V Permit Revisions Summary

1 st Revision	HAP	VOC	NO _x	PM ₁₀	SO _x	CO
Replacing A/B #1 (C15) with RTO #7 (C48) venting pre-pregger #1 (D11-D13), Honeycomb Nomex bake oven (D14) and dip room #1 (D8) (A/N 422026)	0	0	-13.6	-0.77	0	-3.6
Admin C/C to split D11, D12 and D13 from PO #F61780 (C15/C48, D8) (A/N 456659)	0	0	0	0	0	0
Admin C/C to split D14 from PO #F61780 (C15/C48, D8) (A/N 456660)	0	0	0	0	0	0
Admin C/C to relocate RTO #6 (C10) and vent C16-C17 and D20-D22 (A/N 456662)	0	0	0	0	0	0
Admin C/C to remove D19 and to vent D20-D22 to RTO #6 (C47), instead of C23 (A/N 456663)	0	0	0	0	0	0
Admin C/C to vent D16-D17 to RTO #6 (C47) instead of to C18 (A/N 456664)	0	0	0	0	0	0
Operation of RTO #8 (C49), to replace AB #5 (C7), to vent dip coating operation #2 (D9), Rotocure press #10 (D41), and Honeycomb bake ovens #2 and #4 (D5 and D6) (A/N 456665)	0	0	-9.0	-0.53	0	-2.4
New boiler #11 (D51) (A/N 481672)	0	3.21	5.25	3.44	0.38	35.81
Change of condition for spray booth (D39) (A/N 446595)	0	-3	0	0	0	0
Change of condition for spray booth (D1) (A/N 454623)	0	0	0	0	0	0
Cumulative Total	0	0	-17.35	2.14	0.38	29.81
Maximum Daily	30	30	40	30	60	220

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision”.

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision”, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility.

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